

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Islam )  
Serial No.: Not assigned ) Group No.: Not assigned  
Filed: herewith ) Examiner: Not assigned  
For: Multi-Stage Optical Amplifier and )  
Broadband Communication System )

Assistant Commissioner for Patents  
Washington, D.C. 20231

**PRELIMINARY AMENDMENT**

Please take the following amendments into consideration before examination on the merits.

**In the Cross Reference to Related Applications:**

Please amend as follows:

*A1*  
-- This application is a continuation of U.S. Application Serial No. 09/471,753, filed December 23, 1999, which is a continuation-in-part of Provisional Application Serial No. 60/089,726, filed June 16, 1999, and a continuation-in-part of Application Serial No. 09/471,753, filed December 23, 1999. --

**In the Claims:**

Please add the following claims:

- A2*  
1. A multi-stage optical amplifier, comprising:  
2. an optical fiber including a first length of Raman amplifier fiber and a second  
3. length of Raman amplifier fiber, the optical fiber configured to be coupled to a signal  
4. source that produces a plurality of signal wavelengths  $\lambda_s$  and a pump source that  
5. produces one or more pump wavelengths  $\lambda_p$ , wherein the one or more pump  
6. wavelengths  $\lambda_p$  are less than at least a portion of the plurality of signal wavelengths  $\lambda_s$ ,  
7. at least a portion of the plurality of signal wavelengths  $\lambda_s$  of the first Raman amplifier  
8. fiber having an optical noise figure of less than 8 dB and less than an optical noise